with normal hearing, who were made the subject of examination, there was a retraction of the drum-head in the ear to which the receiving instrument was usually applied, the other ear evidencing either none, or only a slight retraction. The continued use of the telephone caused no depreciation of the hearing in operators with normal ears, nor was there on the other hand, any appreciable increase in the capacity for the hearing of tones of high pitch and slight intensity, as is sometimes claimed by the operators, this claim being supported rather by the increase in the accommodative power for tones of this class and by the gradually acquired habit of eliminating, mentally, the co-incident and the extraneous noises. The aural lesions and traumatic neuroses incident to the accidental introduction upon the telephone line of strong currents are the result of the exhibition of a loud and sudden sound and are to be guarded against by proper protective construction in the telephone lines.

Isolated Primary Tuberculosis of the Lobule.—PAETZOLD (*Ztschr. f. Chir.*, 1907, lxxxiv, 469). In three subjects, aged respectively fourteen, fifteen, and twenty-four years, the affected lobule was swollen and thickened, the skin on both anterior and posterior surfaces being shining, of a bluish red color, but free from nodules or ulceration, and the affected area sharply delimited from the surrounding healthy skin; all of the patients wore earrings. The examination of excised portions showed areas of necrosis and giant cells. The author concludes that the isolated primary disease of the lobule in these cases was the result of a tuberculous infection with primary tuberculosis of the subcutaneous fatty tissue, the point of entrance being the punctured opening for the earring, the remaining portions of the auricle being free from infection. The disease is of slow progress and its treatment consists in the radical excision of all the affected tissues.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF
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The Hematology of Carbon Monoxide Poisoning.—It is known that carbon monoxide has an affinity for the hemoglobin of the blood about 140 times greater than oxygen; and that it acts as a poison by throwing out of commission the hemoglobin of the blood as an oxygen carrier, and thereby preventing normal oxidation of the tissues.

Nasmith and Graham (*Jour, Physiology*, 1908, xxxv, 32) have made an interesting study of the blood of guinea-pigs during acute and chronic carbon monoxide poisoning. Guinea-pigs were kept in an atmosphere which contained sufficient carbon monoxide to saturate 25 per cent. of the hemoglobin. The animals soon became acclimated, gained weight, appeared active and happy, and lived for fifteen months. Soon after the animals are put into this atmosphere a change becomes manifest in the hemoglobin percentage, and the number of red blood corpuscles. There is a gradual increase in the percentage of hemoglobin and in the number of red blood corpuscles. Guinea-pigs, whose normal hemoglobin content was 88 per cent. showed an increase to 105, while the red blood corpuscles rose from 6,000,000 to about 8,000,000. A gradual increase in the hemoglobin saturation up to 45 per cent. brought about even more marked changes. The red blood corpuscles almost doubled their number, rising to 10,000,000, and the hemoglobin reached 109 to 110. Soon after the guinea-pigs are introduced into carbon monoxide atmosphere sufficient to saturate 25 per cent. of the hemoglobin, the red blood cells show degenerations, and many erythroblasts appear. When the animals are kept again in the air, after living for months in the carbon monoxide atmosphere, the red blood corpuscles and hemoglobin gradually decrease to their normal proportions. If guinea-pigs are placed in an atmosphere of CO which causes 45 per cent. hemoglobin saturation, they usually die within a few days. The blood changes just described are considered to be analagous to those observed in human beings and animals at high altitudes. Not only are the red blood corpuscles and hemoglobin altered, but the white cells are also affected. In acute CO poisoning there is a marked and rapid leukocytosis with increase in the numbers of pseudo-eosinophiles, and decrease in the lymphocytes. The eosinophiles also undergo interesting changes. There is at first an increase followed by a marked decrease with the appearance of eosinophilic myelocytes. All of these blood changes are referable to an intoxication, not by the CO itself, but by certain tissue products which it is impossible for the animal to oxidize to harmless substances, since the normal amount of oxygen carried to the tissues by the red blood corpuscles is substituted by the inert substance, carbon monoxide.

The Pathogenesis of Gallstones.—In 1905 Gerard first showed that when artificial media, which contained both bile acid salts and cholesterin, was inoculated with colon and typhoid bacilli, the cholesterin was precipitated from the solution. Kramer later demonstrated the same phenomenon by using a mixture of bile and bouillon. EXNER and HEYROVSKY (*Wein. klin. Woch.*, 1908, xxi, 214) have added some interesting observations to this subject. They have confirmed the experiments of Gerard and Kramer, and find further that when bile is inoculated with colon bacilli a large proportion of the bile acid salts are decomposed. This was found true, as could be established by chemical analysis, for the filtered and sterilized bile of ox and man, as well as for a solution of sodium taurocholate and glycocholate in nutrient broth. It is well known that cholesterin is soluble in an aqueous solution of bile salts, but Exner and Heyrovsky found that only half as much cholesterin was dissolved in a 0.5 per cent. solution of the sodium bile salts as in a 1 per cent. solution. They, therefore, concluded that the precipitation of cholesterin from the bile inoculated with colon and typhoid bacilli, is due to the fact that so much of the bile acid salts are destroyed that the entire amount of the cholesterin cannot be held in solution. They further show that the action of different bacteria varies greatly as regards this property of destroying the bile salts. The typhoid bacillus possesses it to a great degree, whereas streptococci have little or no affect.

Granulation of the Red Blood Corpuscles in Anemic Conditions.—ASKANAZY (*Ztschr. f. klin. Med.*, 1907, lxiv, 288) has been able to find red blood cells containing the basophilic granules, so typical of lead poisoning, in a variety of anemic states. He has found them in the blood from cases of pernicious anemia, various forms of secondary anemia, in chlorosis, and in lead poisoning. He considers that these granules are the same as the ones described by Plehn in malaria. The granules are present in red cells which show polychromatophilia and he thinks, moreover, that all granulated cells show some degree of polychromatophilia. The cells which present the greatest polychromatophilia have the finest granules, whereas, the cells with coarse granules show but slight polychromatophilia. The two conditions he considers are stages of the same process which represents not a degeneration of the cells, but is evidence of regeneration. This conclusion he arrives at after some study and experimentation. Askanazy could not find granular cells either in the blood or bone marrow of normal adults, of the newborn, or of fœtuses. In the blood of the newborn and fœtus normoblasts, a few megoblasts, and polychromatophilic cells were seen. In animals the results were somewhat different. Granular cells were often found in the blood of healthy rabbits, and were constantly present in the blood of mice embryos. Four days after bleeding rabbits granular cells appeared in the circulation together with polychromatophilic cells and normoblasts. Rabbits injected with lead acetate showed great numbers of nucleated red cells, polychromatophilic and granular cells in the circulation, but except in one or two instances, when granular normoblasts were seen, granular red cells were not found in the bone marrow. Askanazy believes that in man, at least, the granulated red cells do not appear in the blood under normal conditions. The curious fact that the granulated cells are found only in the circulating blood and not in the bone marrow, is dependent upon the action upon the unripe red cells of the blood serum, which disease has modified in some way

The Etiology and Epidemiology of Plague.—(A summary of the work of the Plague Commission, issued under the authority of the Government of India by the Sanitary Commisioner with the Governments of India, Simla, Calcutta, 1908.) The important conclusions and results of the investigation of the commission, which has been working upon this problem for over two years, are that pneumonic plague is highly contagious, although fortunately it is rare, and since it forms only about 3 per cent. of all cases plays a very small part in the general spread of the disease. Bubonic plague in man is entirely dependent upon the disease in the rat. From the rat the infection is conveyed to man solely by means of the rat flea, which, of course, spreads the infection among the rats themselves. It was found that a large majority of the plague cases occur singly in houses, and that where more than one case occurred in a single house the attacks were generally simultaneous. Plague is usually conveyed from place to place by imported rat fleas, which are carried by people on their persons or in their luggage. The human agent, not infrequently, himself escapes infection. Unsanitary conditions have no relation to the occurrence of plague, except in so far as they favor infection by rats. The non-epidemic season is bridged over by acute plague in the rat, accompanied by a few cases among human beings.

The Bacteriolytic Property of Lecithin.—BARSENGE (*Deut. med. Woch.*, 1908, xxxiv, 139) has found that lecithin has, in vitro, a marked bacteriolytic effect upon typhoid bacilli. The lecithin was used in 1 per cent., 0.1 per cent. and 0.01 per cent. aqueous emulsions. When large quantities of a culture of typhoid bacilli were brought in contact with the 1 per cent. emulsion, the bacilli showed such fragmentation and degeneration that the picture simulated very closely that seen in the Pfeiffer phenomenon. Cultures showed that 1 per cent. emulsions of lecithin, when inoculated with typhoid bacilli and incubated, were sterile. A very preceptible inhibition of growth took place in 1 to 1000 emulsions, while the growth in 1 to 10,000 emulsions was practically the same as in the control bouillon tubes. The hope that animals might be made refractory to inoculations of typhoid bacilli by previous injections of lecithin emulsions proved unfounded. Animals inoculated with many times the fatal dose of typhoid bacilli in lecithin emulsions succumbed as rapidly as the control animals. It was, however, found possible to obtain a toxin, in the case of typhoid bacilli an endotoxin, by treating the bacteria with lecithin and chloroform. With this toxin animals could rapidly be immunized against many times the fatal dose of living typhoid bacilli.

Blood Formation in the Spleen and Liver in Experimental Anemia.—DOMARNS (*Archiv. f. exp. Path. u. Pharmakol.*, 1908, lviii, 319) has demonstrated that changes in the spleen and liver, similar to those described by Meyer and Heinecke in man in pernicious anemia and in other severe anemias, may be produced in animals by the administration of hemolytic substances; his results confirm those obtained by Morris. In some instances, especially in chronic anemias with regeneration, the liver and spleen both resembled the organs of the embryo at the stage when these organs are engaged in hematopoiesis. The changes produced are looked upon as compensatory regenerative efforts of the organism.

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